RATIO OF THE PROMPT-FISSION-NEUTRON SPECTRUM OF PLUTONIUM 239 TO THAT OF URANIUM 235*

by

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ABSTRACT

The prompt-fission-neutron spectrum resulting from ^{239}Pu fission induced by 0.55 MeV incident neutrons is measured from 1.0 to 10.0 MeV relative to that of ^{235}U fission induced by the same incident-energy neutrons. The measurements employ the time-of-flight technique. Energy-dependent ratios of the two spectra are deduced from the measured values over the energy range 1.0 to 10.0 MeV. The experimentally-derived ratio results are compared with those calculated from ENDF/B-V, revision-2, and with results of recent microscopic measurements. Using the ENDF/B-V ^{235}U Watt parameters for the ^{235}U spectrum, the experimental measurements imply a ratio of average fission-spectrum energies of $^{239}Pu/^{235}U = 1.045 \pm 0.003$, compared to the value 1.046 calculated from ENDF/B-V, revision 2.

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